bürkert
FLUID CONTROL SYSTEMS

Type 3360, 3361

Electromotive control valve
Elektromotorisches Regelventil
Vanne de régulation électromotorisée

Service Manual
Serviceanleitung
Service Manuel

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

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Technische Änderungen vorbehalten.
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Content

1 THE SERVICE INSTRUCTIONS 5

1.1 Symbols 5

1.2 Definition of the term "device" 5

2 BASIC SAFETY INSTRUCTIONS 6

3 GENERAL INFORMATION 8

3.1 Contact addresses 8

3.2 Warranty 8

3.3 Information on the Internet 8

3.4 Auxiliary materials 8

4 OVERVIEW OF SPARE PARTS 9

4.1 Replacement part sets for Type 3360 9

4.2 Replacement part sets for Type 3361 9

4.3 Spare parts for Types 3360 and 3361 10

5 CHANGING THE CONTROL CONE SET 11

5.1 Removing the actuator 11

5.1.1 Opening valve electrically 11

5.1.2 Opening valve mechanically 13

5.2 Changing the control cone set 15

5.3 Installing the actuator 16

5.4 Running X.TUNE 17

5.4.1 Adjustment using the buttons in the device 17

6 CHANGING THE SEAL SET 18

6.1 Removing the control cone 18

6.2 Changing the packing gland 19

6.2.1 Changing the packing gland for the connection size 10/15 (DN4-15) and vacuum version 21

6.3 Installing the control cone 22

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

7 CHANGING THE VALVE SET 23
7.1 Changing the valve set 23
8 CHANGING THE ENERGY PACK 25
8.1 Removing the display module or dummy cover 25
8.2 Removing LED and storage module 26
8.3 Removing actuator cover 26
8.4 Replacing the SAFEPOS energy-pack 26
9 ACCESSORIES, SPARE PARTS 28
9.1 Communications software 28
9.1.1 USB interface 28
9.2 Spare parts 29
9.2.1 Spare parts for control valves of Types 3360 and 3361 29
9.2.2 Spare parts for angle seat control valve of Type 3360 29
9.2.3 Spare parts for straight seat control valve of Type 3361 29
9.3 Installation tools 31
9.3.1 Installation tools for control valves of Types 3360 and 3361 31
9.3.2 Installation tools for control valves of Type 3361 31
10 PACKAGING, TRANSPORT 32
11 STORAGE 32
12 DISPOSAL 32

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

1 THE SERVICE INSTRUCTIONS

The service instructions describe the procedure for changing spare parts of the process valves of Types 3360 and 3361.

Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the device.

The service instructions contain important safety information.

Failure to observe these instructions may result in hazardous situations.

▸ The service instructions must be read and understood.

1.1 Symbols

DANGER!

Warns of an immediate danger.

▸ Failure to observe the warning will result in fatal or serious injuries.

WARNING!

Warns of a potentially dangerous situation.

▸ Failure to observe the warning may result in serious injuries or death.

CAUTION!

Warns of a possible danger.

▸ Failure to observe this warning may result in a moderate or minor injury.

NOTE!

Warns of damage to property!

▪ Failure to observe the warning may result in damage to the device or the equipment.

indicates important additional information, tips and recommendations.

refers to information in these operating instructions or in other documentation.

→ designates a procedure which you must carry out.

1.2 Definition of the term "device"

In these instructions, the term "device" always refers to the Types 3360 and 3361.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

2 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any

- contingencies and events which may arise during the assembly, operation, and maintenance.
- local safety regulations – the operator is responsible for observing these regulations, also in relation to the installation personnel.

Risk of injury from high pressure.

▸ Before working on the system or device, switch off the pressure and vent or drain lines.

If switched on for a prolonged time, risk of burns or fire due to hot device surface.

▸ Keep the device away from highly flammable substances and media and do not touch with bare hands.

Risk of crushing due to mechanically moving parts.

▸ Perform installation and maintenance work only in the isolated state.
Devices with SAFEPOS energy-pack: Completely drain SAFEPOS energy-pack. Wait until LED illuminated ring goes out; the LED status must not be in LED off mode.

▸ Keep clear of the openings in the valve body.

Danger due to an uncontrolled process in the event of a power failure.

If devices do not have the optional SAFEPOS energy-pack, the valve remains in an undefined position in the event of a power failure.

▸ If the valve position is relevant as regards safety in the event of a power failure: Use only those devices which have the SAFEPOS energy-pack (optional energy pack).

▸ In the SAFEPOS select a valve position which is safe for the process.

General hazardous situations.

To prevent injuries:

▸ Do not make any internal or external changes on the device and do not subject it to mechanical stress.

▸ Only feed media specified in the data sheet into the media connections.

▸ Secure to prevent unintentional actuation.

▸ Only trained technicians may perform installation and maintenance work.

▸ The valves must be installed in accordance with the regulations applicable in the country.

▸ After an interruption in the power supply, ensure that the process is restarted in a controlled manner. Observe sequence!
1. Apply supply voltage.
2. Charge the device with medium.

▸ Observe the general rules of technology.

▸ Install the valves must in accordance with the regulations applicable in the country.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

NOTE!

Electrostatically sensitive components and modules.

The device contains electronic components which react sensitively to electrostatic discharge (ESD). Contact with electrostatically charged persons or objects are hazardous to these components. In the worst case scenario, they will be destroyed immediately or will fail after start-up.

- Observe the requirements in accordance with EN 61340-5-1 to minimize or avoid the possibility of damage caused by a sudden electrostatic discharge.
- Do not touch electronic components while the supply voltage is switched on.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

3 GENERAL INFORMATION

3.1 Contact addresses

Germany

Bürkert Fluid Control Systems
Sales Center
Christian-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. + 49 (0) 7940 - 10 91 111
Fax + 49 (0) 7940 - 10 91 448
Email: info@de.buerkert.com

International

Contact addresses can be found on the final pages of the printed operating instructions.

And also on the Internet at:

www.burkert.com

3.2 Warranty

The warranty is only valid if the device is used as intended in accordance with the specified application conditions.

3.3 Information on the Internet

Operating instructions and data sheets for Types 3360 and 3361 can be found on the Internet at:

www.burkert.com

3.4 Auxiliary materials

The following auxiliary materials are recommended in these instructions for carrying out repairs:

Type of auxiliary material	Auxiliary material	Manufacturer's specifications
Sealer and anti-seize agents	Silicone grease OKS 1110-3	OKS Schmierstoffe GmbH www.oks-germany.com
Lubrication paste	Klüber paste UH1 96-402	Klüber Lubrication München www.klueber.de

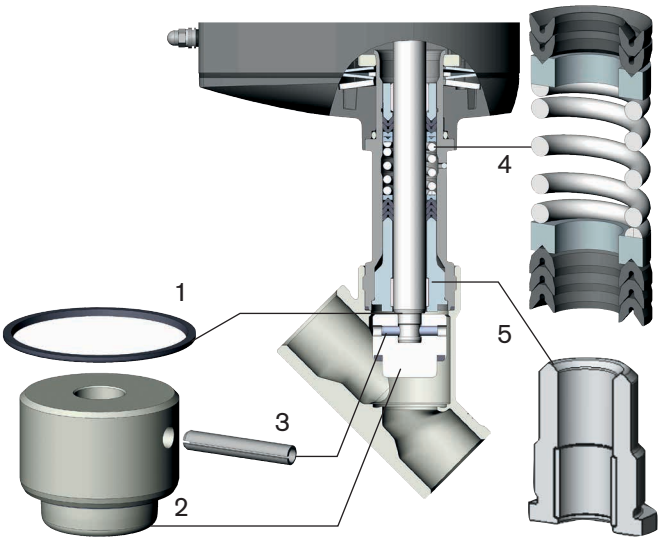
MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

4 OVERVIEW OF SPARE PARTS

4.1 Replacement part sets for Type 3360

The following replacement part sets are available for Type 3360:

- **Control cone set**
  consisting of: Graphite seal, control cone, dowel pin and lubricant
- **Seal set for the packing gland**
  consisting of: Individual parts of the packing gland, graphite seal and lubricant
- **Spindle guide for the packing gland**
  consisting of: Spindle guide, graphite seal and lubricant



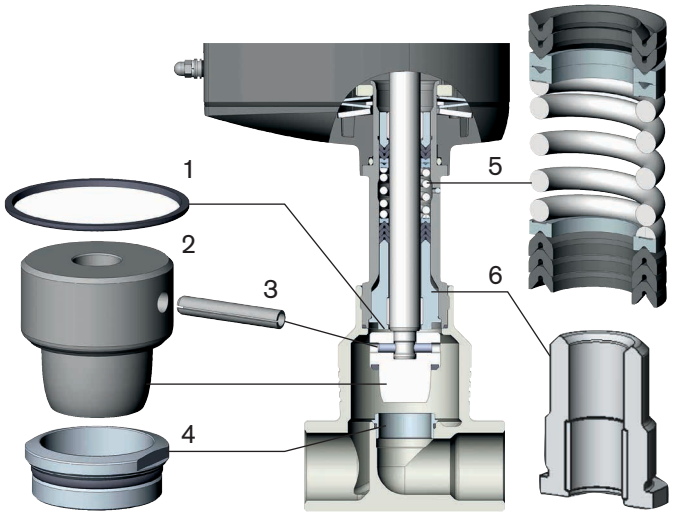
Item	Description	
1	Graphite seal	Control cone set
2	Control cone	
3	Dowel pin	
4	Seal set for packing gland	
5	Spindle guide for packing gland	

4.2 Replacement part sets for Type 3361

The following replacement part sets are available for Type 3361:

- **Control cone set**
  consisting of: Graphite seal, control cone, dowel pin and lubricant
- **Valve set**
  consisting of: Graphite seal, control cone, dowel pin, valve seat and lubricant
- **Seal set for the packing gland**
  consisting of: Individual parts of the packing gland, graphite seal and lubricant
- **Spindle guide for the packing gland**
  consisting of: Spindle guide, graphite seal and lubricant

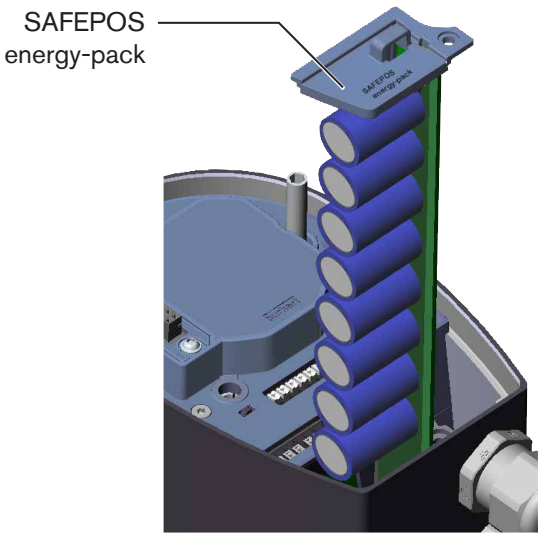
MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)



Item	Description		
1	Graphite seal	Control cone set	Valve set
2	Control cone		
3	Dowel pin		
4	Valve seat		
5	Seal set for packing gland		
6	Spindle guide for packing gland		

4.3 Spare parts for Types 3360 and 3361

- SAFEPOS energy-pack.
  Optionally there is an energy pack for the device. If the supply voltage fails, the energy pack supplies the actuator with the required energy to move the valve into the required position which can be adjusted via the menu.



MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

5 CHANGING THE CONTROL CONE SET

Before the control cone set can be changed, the actuator must be removed from the valve body.

5.1 Removing the actuator

DANGER!

Risk of injury from high pressure.

▸ Before working on the system or device, switch off the pressure and vent or drain lines.

WARNING!

Risk of injury if the wrong tools are used.

It is dangerous to use unsuitable tools for installation work as the device may be damaged.

▸ To remove the actuator from the valve body, use an open-end wrench, never a pipe wrench.

When removing the actuator from the valve body, ensure that the valve is in the open position. The valve position must be detected on the mechanical position indicator (as illustrated in "Figure 1").
The control valve can be manually opened in 2 ways: **electrically** or **mechanically**.

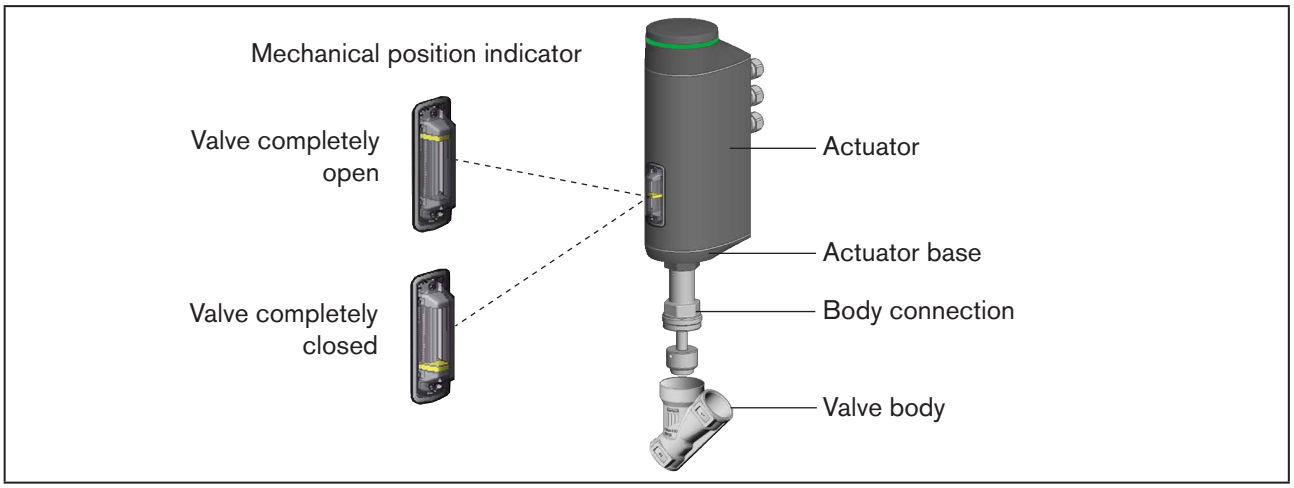


Figure 1: Mechanical position indicator

5.1.1 Opening valve electrically

Depending on the device version, the valve is manually and electrically opened on the display or by pressing 2 buttons which are located on the LED and storage module under the dummy cover.

Devices with display module

The valve is opened on the display in View 1 (start screen) and in MANUAL operating state.

You can access View 1 by holding down the Back button. To open and close the valve, the MANU / AUTO layout must be selected for View 1 (preset at the factory). An exact description can be found in the operating instructions at www.burkert.com.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

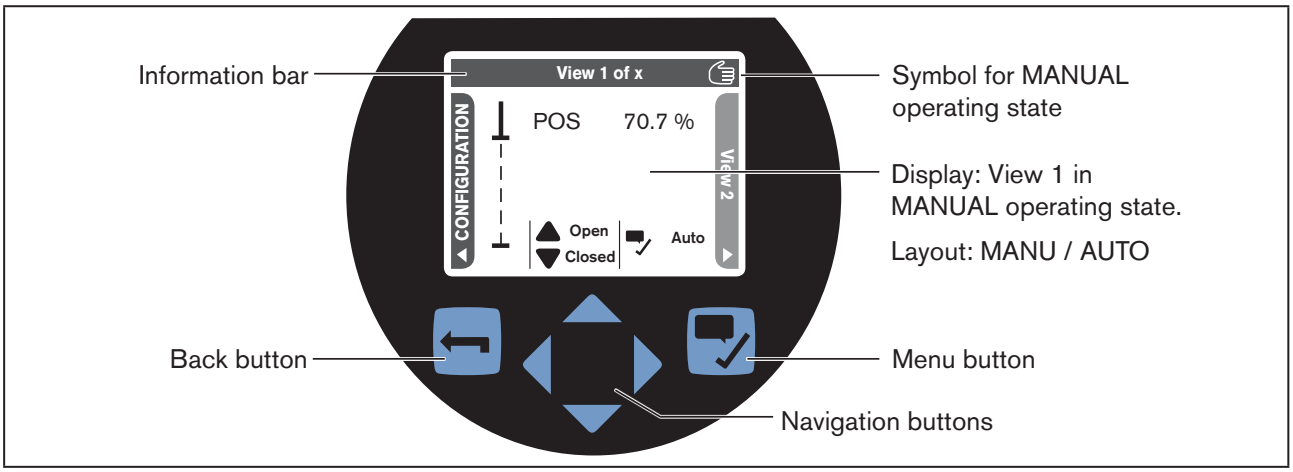


Figure 2: Electrical manual control on the display

→ Press Menu button: Change to MANUAL operating state.
The HAND symbol can be seen on the information bar. The 2 arrow symbols labeled "open" and "closed" are shown. The LED illuminated ring on the device flashes.

→ Press upper navigation button until the valve is completely open.
The valve position must be detected on the mechanical position indicator (see "Figure 1").

→ Clamp the valve body into a holding fixture.

→ Place a suitable open-end wrench on the body connection.
⚠ Do not unscrew the body connection with a tool which may damage the body connection.

→ Unscrew the actuator off the valve body.

Devices without display module

To actuate the valve, the device must be in MANUAL operating state. The 2 buttons for opening and closing the valve are located under the dummy cover.

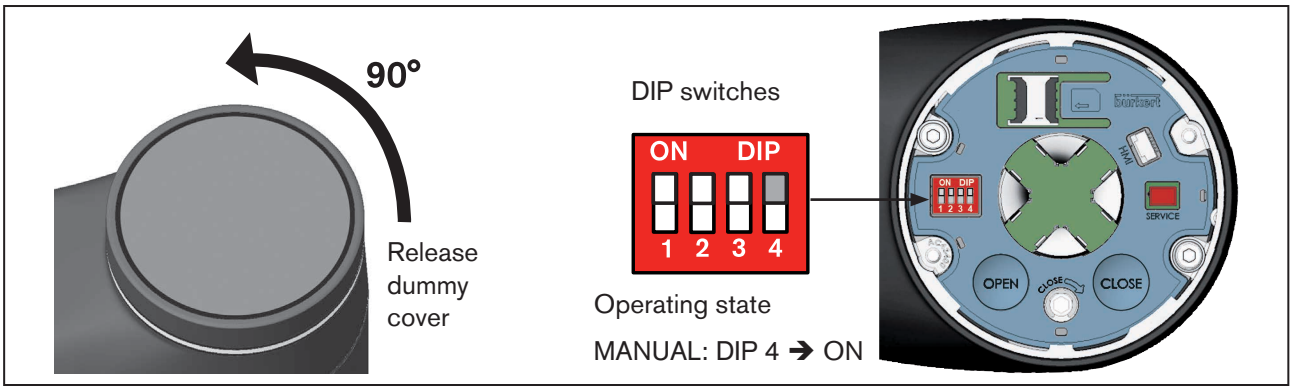


Figure 3: Setting MANUAL operating state

→ Rotate the dummy cover counter-clockwise by 90° and remove from the actuator housing.

→ Set DIP switch 4 to ON.
The device is the MANUAL operating state.

→ Press OPEN button until the valve is completely open.
The valve position must be detected on the mechanical position indicator (see "Figure 1").

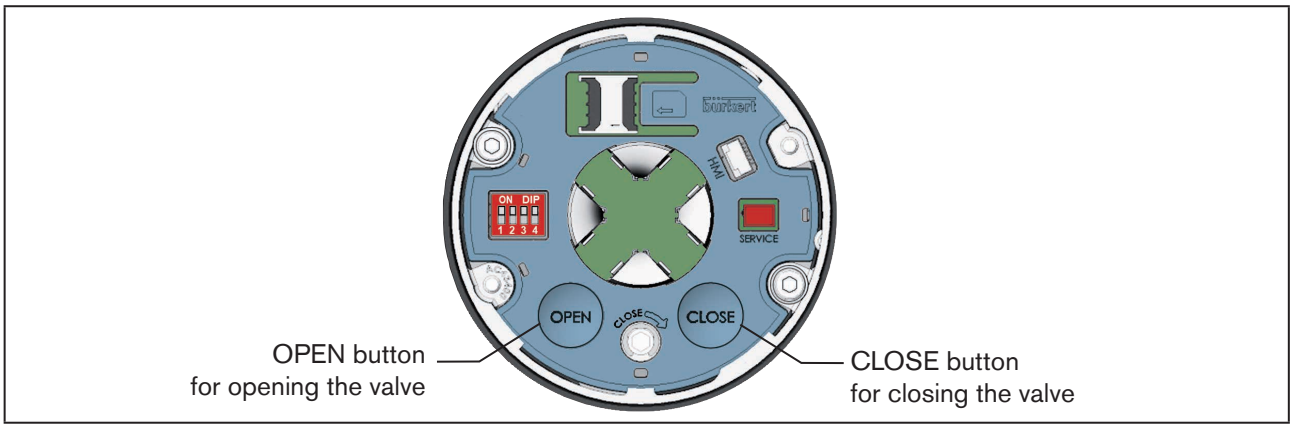


Figure 4: Electrical manual control for devices without display module

→ Clamp the valve body into a holding fixture.

→ Place a suitable open-end wrench on the body connection.
⚠ Do not unscrew the body connection with a tool which may damage the body connection.

→ Unscrew the actuator off the valve body.

5.1.2 Opening valve mechanically

When the supply voltage is not applied, e.g. during installation or in the event of a power failure, the valve can be opened with the mechanical manual control.

NOTE!

The mechanical manual control may be used in a de-energized state only, otherwise the device may be damaged.

NOTE!

Carefully remove display module ensuring that the connection cable and the HMI interface are not damaged.

→ Rotate the display module or dummy cover counter-clockwise by 90° and remove from the actuator housing.
⚠ On the display module pay attention to the connection cable leading to the HMI interface!

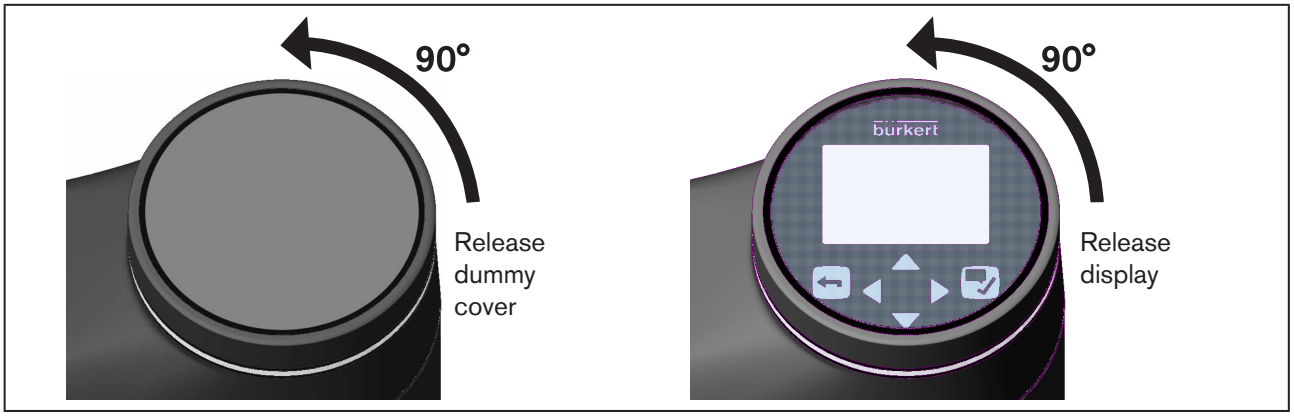


Figure 5: Removing dummy cover or display module from the actuator housing

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

NOTE!

Damage to the manual control by exceeding the tightening torque.

If the tightening torque is exceeded on reaching the valve end position, the mechanical manual control will be damaged.

▸ Do not exceed the maximum tightening torque of 2 Nm.

To adjust the valve, use an Allen key with 4 mm width across flats.
The mechanical position indicator must detect when the valve reaches the end positions (see "Figure 1").

→ Applying a gentle pressure, couple the mechanical manual control and simultaneously turn the Allen key counter-clockwise (see "Figure 6").
⚠ Maximum tightening torque 2 Nm!

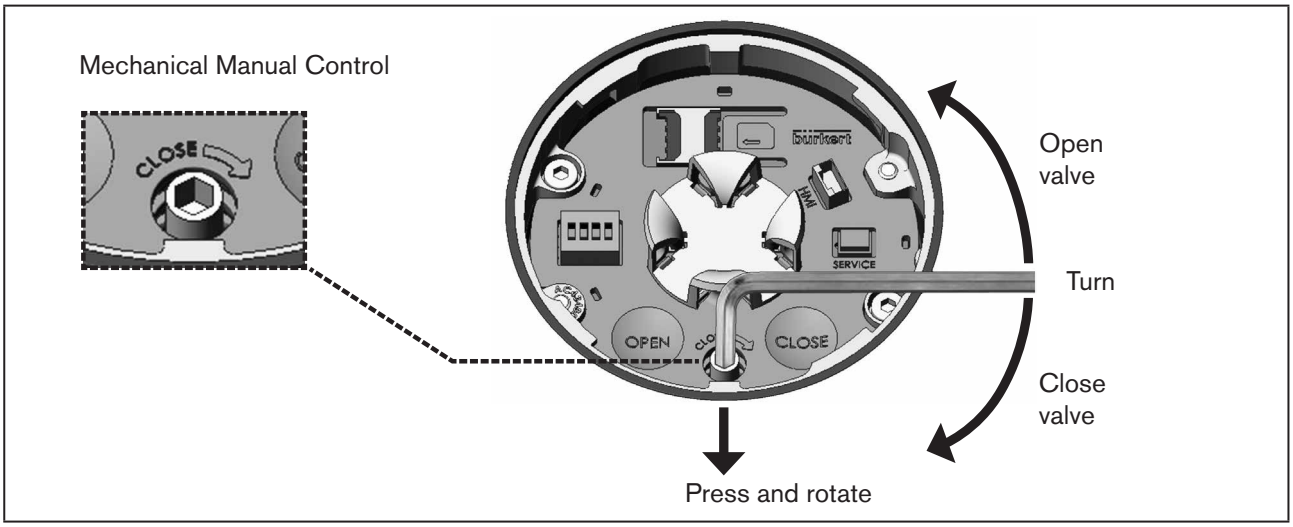


Figure 6: Mechanical Manual Control

→ After reaching the required valve position, remove the Allen key.
The valve position must be detected on the mechanical position indicator (see "Figure 1").

→ Clamp the valve body into a holding fixture.

→ Place a suitable open-end wrench on the body connection.
⚠ Do not unscrew the body connection with a tool which may damage the body connection.

→ Unscrew the actuator off the valve body.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

5.2 Changing the control cone set

→ Knock out dowel pin using a suitable pin punch (see "Table 1").

Spindle diameter [mm]	Pin punch	Connection size Valve body DN [mm]
10	4	10/15 and 20
14	5	25 to 50

Table 1: Spindle diameter with reference to DN

→ Remove control cone.

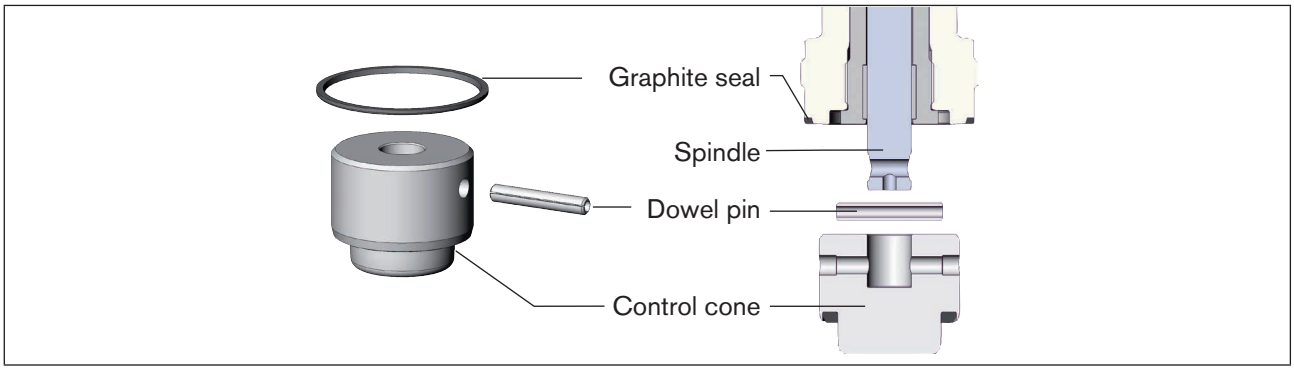


Figure 7: Changing the control cone set

NOTE!

Important information for the problem-free and safe functioning of the device: The sealing surface and control contour of the control cone cannot be damaged.

→ Attach new control cone to the spindle.

→ Align bores of the control cone and spindle.

→ Support control cone on the cylindrical part with the help of a prism.

→ Put on dowel pin and carefully knock in with a hammer.

→ Position the dowel pin in the center of the spindle axis.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

5.3 Installing the actuator

When installing the actuator, ensure that the valve is in the open position.

→ Replace graphite seal.

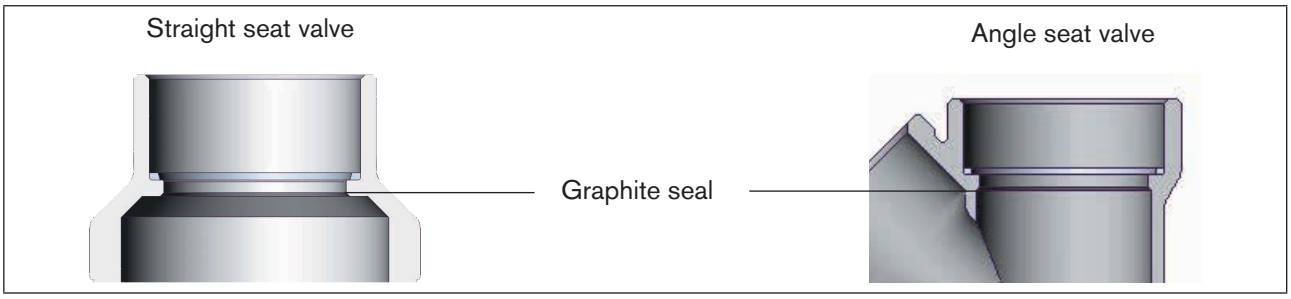


Figure 8: Graphite seal

WARNING!

Danger if unsuitable lubricants are used.

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion.

▸ Only use approved lubricants for specific applications, such as oxygen applications or analytical applications.

→ Grease the external thread of the body connection (e.g. with Klüber paste UH1 96-402 from Klüber).

→ Place a suitable open-end wrench on the body connection.

⚠ Do not screw on the body connection with a tool which may damage the body connection.

→ Screw actuator onto the valve body.

⚠ Observe tightening torque (see "Table 2").

Connection size valve body DN [mm]	Tightening torques [Nm]
13/15	45 ±3
20	50 ±3
25	60 ±3
32	65 ±3
40	
50	70 ±3
65	100 ±3

Table 2: Tightening torques for valve body / body connection

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

5.4 Running X.TUNE

After installing the actuator, run the X.TUNE function.

When the X.TUNE function is run, the position controller is adjusted to the physical stroke of the actuating element used.

NOTE!

Do not run X.TUNE without a mandatory requirement.

It is not necessary to rerun the X.TUNE function already run at the factory unless the valve body has been changed. In this case the position controller must be readjusted to the actuating element.

WARNING!

Danger due to uncontrolled process after running the X.TUNE function.

If the X.TUNE is run under medium pressure, the controller will be incorrectly adjusted. This will result in an uncontrolled process.

- Never run the X.TUNE under medium pressure.
- Secure system against unintentional activation.

5.4.1 Adjustment using the buttons in the device

The 2 buttons for running the X.TUNE are located under the dummy cover.

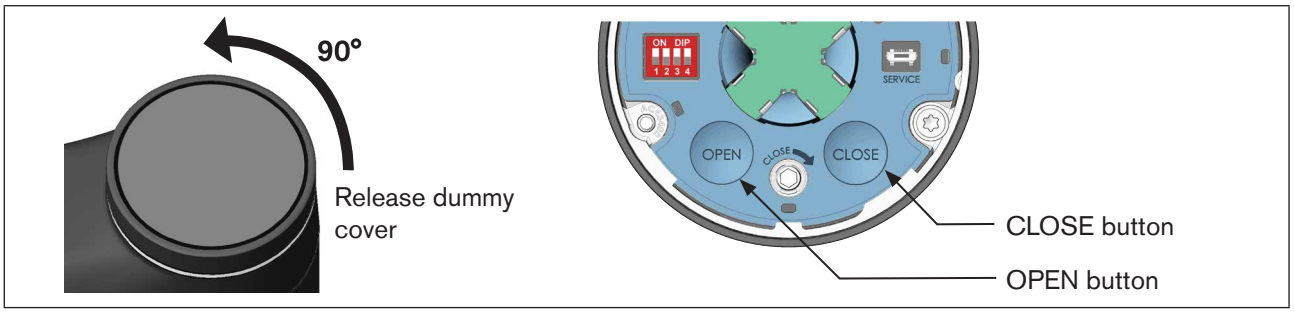


Figure 9: Adjustment of the position controller using the buttons in the device

→ To release the dummy cover, rotate counter-clockwise by 90°.

→ Remove actuator housing.

Run X.TUNE function:

Do not run the X.TUNE unless it is absolutely essential.

→ Simultaneously hold down the OPEN and CLOSE buttons for 5 s.

The rapidly flashing LEDs indicate that the X.TUNE is running.

When X.TUNE is complete, the LEDs have their previous status
(continuous light for AUTOMATIC operating state, flashing for MANUAL operating state).

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

6 CHANGING THE SEAL SET

Before the seal set can be replaced, the actuator must be removed from the valve body and the control cone must be removed.

DANGER!

Risk of injury from discharge of medium and release of pressure.

It is dangerous to remove a device which is under pressure due to the sudden release of pressure or discharge of medium.

- Before removing a device, switch off the pressure. Deaerate lines.

WARNING!

Risk of injury if the wrong tools are used.

It is dangerous to use unsuitable tools for installation work as the device may be damaged.

- To remove the actuator from the valve body, use an open-end wrench, never a pipe wrench.
- To replace the packing gland, use a special installation wrench, modified socket wrench or open-end wrench.
- Observe specified tightening torques.

Observe exact description for removing the actuator in chapter "5.1 Removing the actuator".

6.1 Removing the control cone

WARNING!

Risk of crushing due to mechanically moving parts.

- Switch off supply voltage.
- Devices with SAFEPOS energy-pack: Completely drain SAFEPOS energy-pack. Wait until LED illuminated ring goes out; the LED illuminated display must not be in LED off mode.
- Keep clear of the openings in the valve body.

→ Knock out dowel pin using a suitable pin punch (see "Table 1").

→ Remove control cone.

NOTE!

Important information for the problem-free and safe functioning of the device: The sealing surface and control contour of the control cone must not be damaged.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

6.2 Changing the packing gland

WARNING!

Risk of injury from ejected parts.

When the spindle opening is exposed, the individual parts of the packing gland are pressed out at an undefined speed when the relief bore is pressurized.

- Before pressurizing with compressed air, safeguard the ambient area of the discharge opening (e.g. place spindle on a firm base).

Caution!
Not all individual parts of the packing gland are pressed out by pressurizing with compressed air. Usually the upper gaskets remain in the packing gland tube. Replace the pressed out individual parts only.

→ Place the open-end wrench on the body connection. Unscrew spindle guide with the aid of a modified socket wrench.

Modified socket wrench is not included in the spare part sets. It can be ordered separately. Order number of the modified socket wrench can be found in chapter "9 Accessories, spare parts". If you have any questions, please contact your Bürkert sales office.

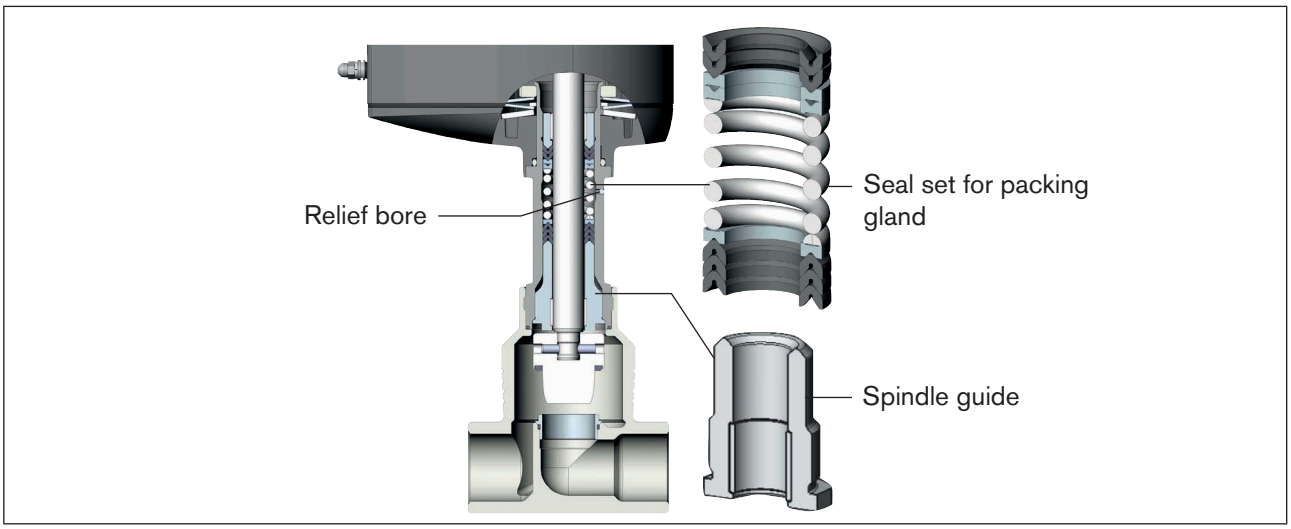


Figure 10: Spindle guide for the packing gland

→ Place spindle on a firm base.

NOTE!

Individual parts of the packing gland can remain inserted in the threaded part of the packing gland tube. The individual parts are then ready to hand:

1. Before pressurizing the relief bore: Move the spindle with the aid of the mechanical manual control (see chapter "5.1.2") into the upper position.
2. After pressurizing the relief bore: Move the spindle with the aid of the mechanical manual control into the lower position.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

→ Pressurize relief bore with approx. 6 bar compressed air.

WARNING!

Danger if unsuitable lubricants are used.

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion.

▸ Only use approved lubricants for specific applications, such as oxygen applications or analytical applications.

→ Grease gaskets of the new packing gland package with the supplied lubricant.

→ Place the individual parts on the spindle in the prescribed direction and sequence.

→ Push packing gland into the packing gland tube.

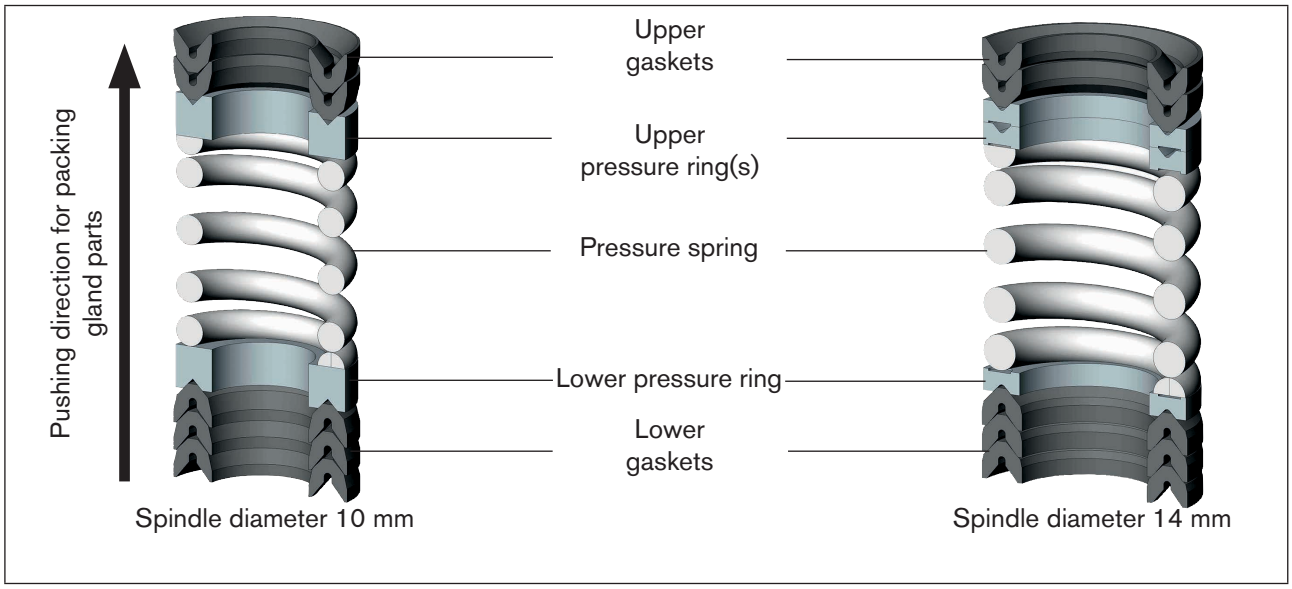


Figure 11: Seal set for the packing gland

→ Grease spindle guide thread with Klüber paste UH1 96-402.

→ Screw in spindle guide.

⚠ Observe tightening torque (see "Table 3").

Spindle diameter [mm]	Connection size Valve body DN [mm]	Tightening torques [Nm]
10	10/15	15
	20	25
14	25	25
	32 to 50	60

Table 3: Spindle guide tightening torques

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

6.2.1 Changing the packing gland for the connection size 10/15 (DN4-15) and vacuum version

Before the packing gland can be changed, the actuator must be removed from the valve body and the control cone must be removed.

An exact description for removing the actuator and the control cone can be found in chapters "5.1 Removing the actuator" and "6.1 Removing the control cone".

→ Clamp the body connection in a holding device.

→ Loosen 4 screws on the actuator base.

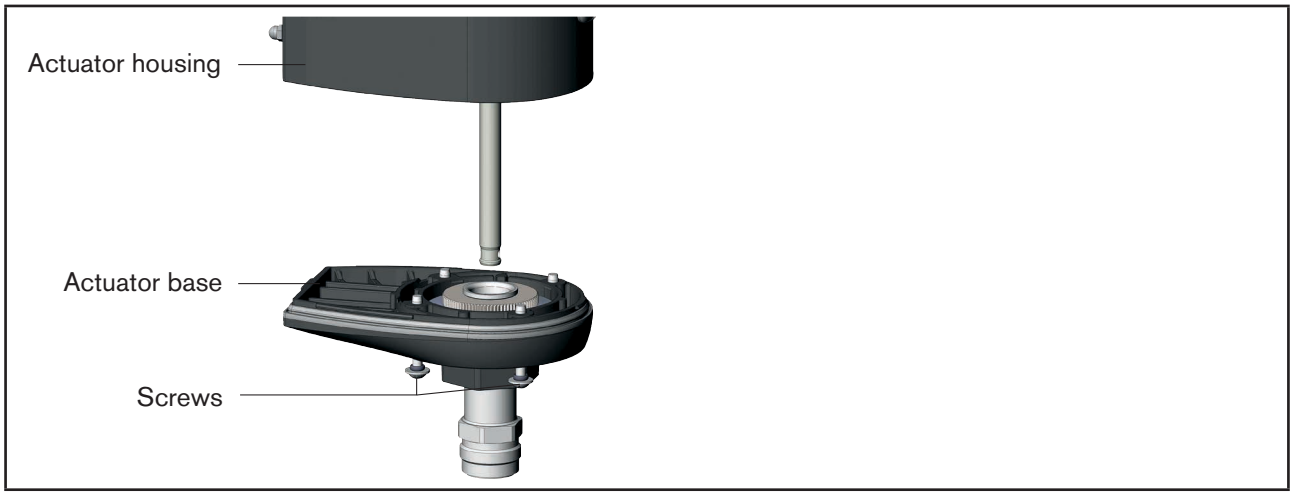


Figure 12: Removing actuator housing from the actuator base

→ Remove actuator housing from the actuator base.

→ Clamp the actuator base in a holding device.

→ Unscrew spindle guide.

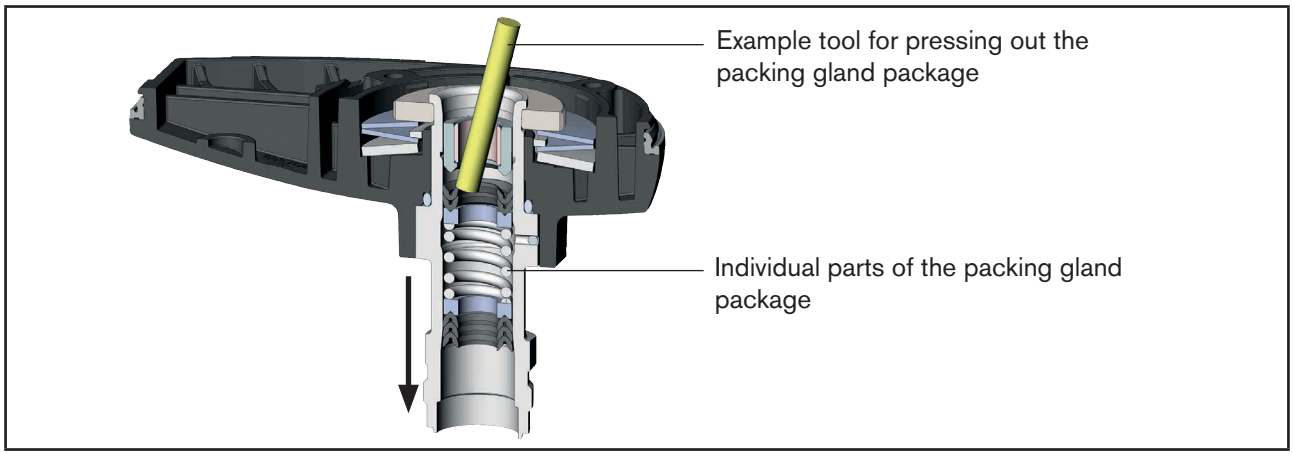


Figure 13: Pressing out individual parts of the packing gland

→ Using a suitable tool (e.g. screwdriver), carefully press out the packing gland package.

⚠ Do not damage top of guide.

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WARNING!

Danger if unsuitable lubricants are used.

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion.

▸ Only use approved lubricants for specific applications, such as oxygen applications or analytical applications.

→ Grease gaskets of the new packing gland package with the supplied lubricant.

→ Insert required individual parts of the new packing gland package in the correct sequence (see "Figure 11").

→ Grease spindle guide thread. Screw in spindle guide.
⚠ Observe tightening torque (see "Table 3").

→ Place actuator base on the actuator housing.

→ Tighten 4 screws crosswise.
⚠ Observe tightening torque of 5 Nm.

6.3 Installing the control cone

→ Attach control cone to the spindle.

→ Align bores of the control cone and spindle.

→ Support control cone on the cylindrical part with the help of a prism.

→ Put on dowel pin and carefully knock in with a hammer.

→ Position the dowel pin in the center of the spindle axis.

→ Grease valve body thread.

→ Replace graphite seal.

→ Clamp the valve body into a holding fixture.

→ Screw actuator into the valve body.
⚠ Observe tightening torques (see "Table 2").

Observe exact description for installing the actuator in chapter "5.3".

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

7 CHANGING THE VALVE SET

Before the valve set can be changed, the actuator must be removed from the valve body.

Observe exact description for removing the valve set in chapter "5.1 Removing the actuator".

7.1 Changing the valve set

→ Select a suitable tool insert and screw it into the installation tool.

Installation tool is not included in the valve set. It can be ordered separately. Order number of the installation tool can be found in chapter "9 Accessories, spare parts". If you have any questions, please contact your Bürkert sales office.

→ Unscrew the valve seat using the installation tool and a wrench.

→ Clean the thread and sealing surface in the valve body using compressed air.

→ Place the new valve seat on the installation tool.

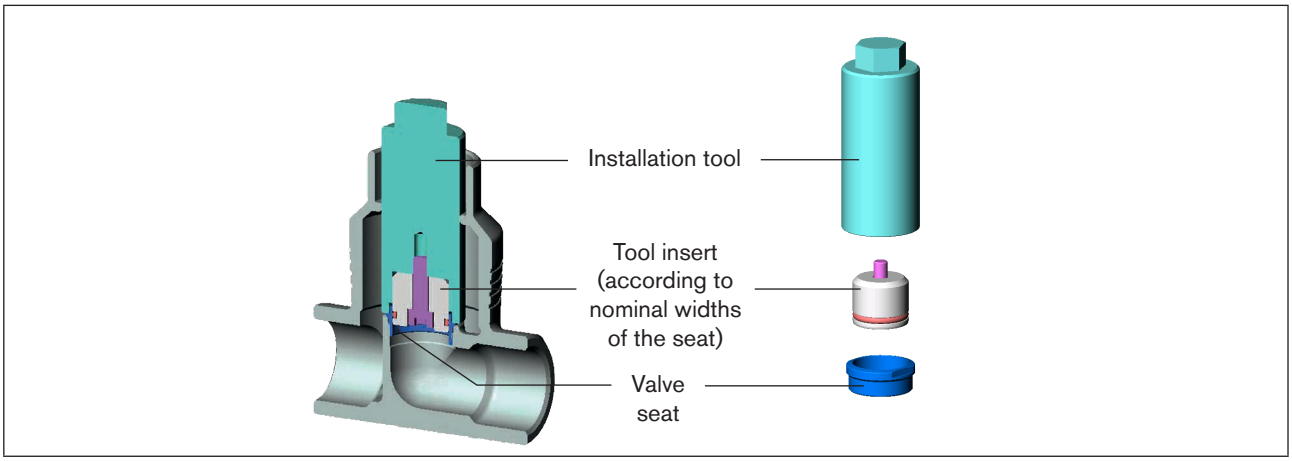

Figure 14: Replacing the valve seat

WARNING!

Danger if unsuitable lubricants are used.

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion.

▸ Only use approved lubricants for specific applications, such as oxygen applications or analytical applications.

→ Grease the valve seat thread with a lubricant (e.g. with Klüber paste UH1 95-402 from Klüber).

→ Manually screw the fitted valve seat into the valve body thread.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

→ Screw in valve seat tight using torque wrench.
⚠ Observe tightening torque (see "Table 4").

Screw connection		Tightening torques		
Seat DN	Connection size valve body DN [mm]	Uncoated seats [Nm]	Coated seats [Nm]	Tolerance [Nm]
4-15	10/15	25	20	+3
20	20	35	28	+3
25	25	50	40	+5
32	32	80	65	+5
40	40	100	85	+8
50	50	120	120	+8

Table 4: Tightening torques for valve seat installation

→ Grease valve body thread.

→ Replace graphite seal.

→ Clamp the valve body into a holding fixture.

→ Screw actuator into the valve body.
⚠ Observe tightening torques (see "Table 2").

Observe exact description for installing the actuator in chapter "5.3 Installing the actuator".

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

8 CHANGING THE ENERGY PACK

CAUTION!

Risk of injury due to electric shock.

- Before removing the SAFEPOS energy-pack, switch off the supply voltage.
- Completely drain SAFEPOS energy-pack. Wait until the LED illuminated ring goes out; the LED status must not be in LED off mode.

Setting the LED mode is described in the operating instructions at www.buerkert.de.

The SAFEPOS energy-pack is located in the actuator housing. To replace it, remove the following parts from the actuator:

- Display module or dummy cover
- LED and storage module
- Actuator cover

8.1 Removing the display module or dummy cover

NOTE!

Carefully remove display module ensuring that the connection cable and the HMI interface are not damaged.

→ Rotate the display module or dummy cover counter-clockwise by 90° and remove from the actuator housing.
⚠ On the display module pay attention to the connection cable leading to the HMI interface!

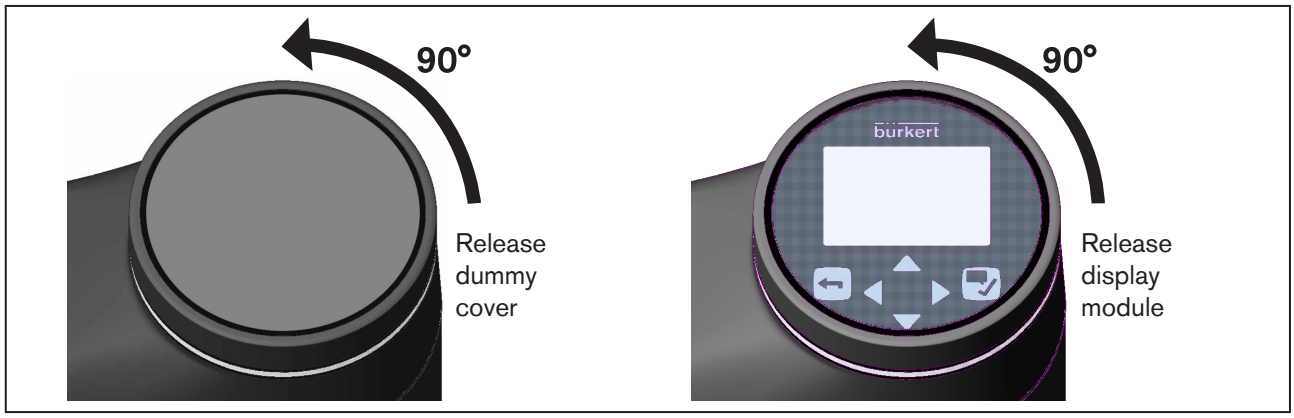

Figure 15: Removing dummy cover or display module from the actuator housing

Device version with display module:

→ Release the HMI interface and disconnect the connection cable.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

8.2 Removing LED and storage module

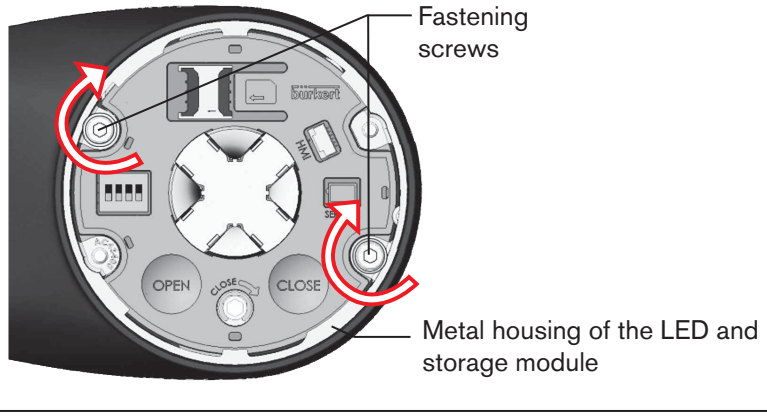

Figure 16: Removing LED and storage module

→ Remove the 2 fastening screws (hexagon head key, width across flats 3 mm).

→ Take hold of the LED and storage module on both sides of the metal housing and lift out.

8.3 Removing actuator cover

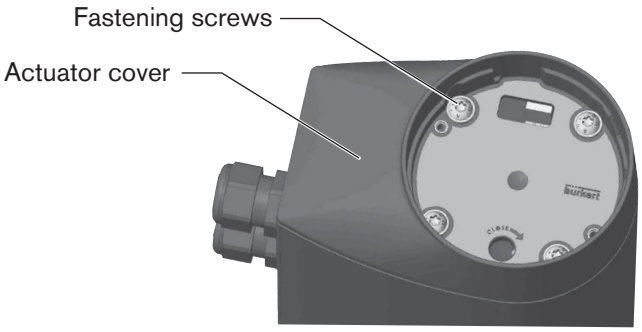

Figure 17: Removing actuator cover

→ Loosen the 4 fastening screws (T25 hexagonal socket round screws).
The screws are integrated in the actuator cover to prevent them from falling out.

→ Remove actuator cover.

8.4 Replacing the SAFEPOS energy-pack

NOTE!

Recommendation: Before removing the SAFEPOS energy-pack, switch off the supply voltage.

→ Loosen locking screw (T10 hexagonal socket round screw).

→ Completely pull out SAFEPOS energy-pack on the bracket.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

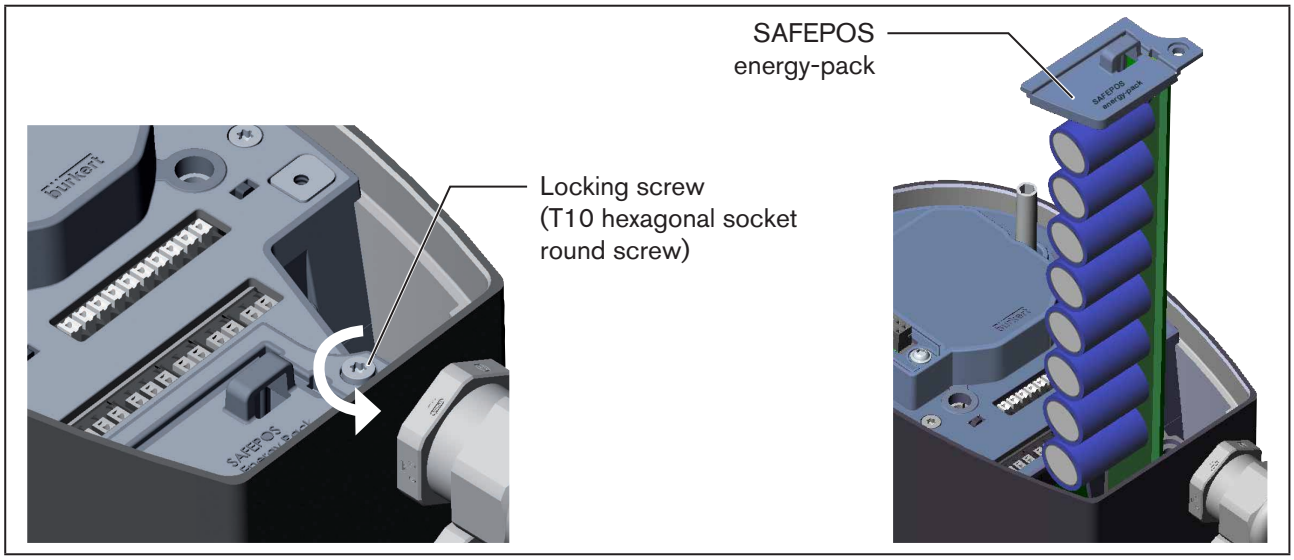

Figure 18: Removing the SAFEPOS energy-pack

→ Take SAFEPOS energy-pack out of the transport packaging.

→ Insert SAFEPOS energy-pack into the two guiding grooves and push in all the way.

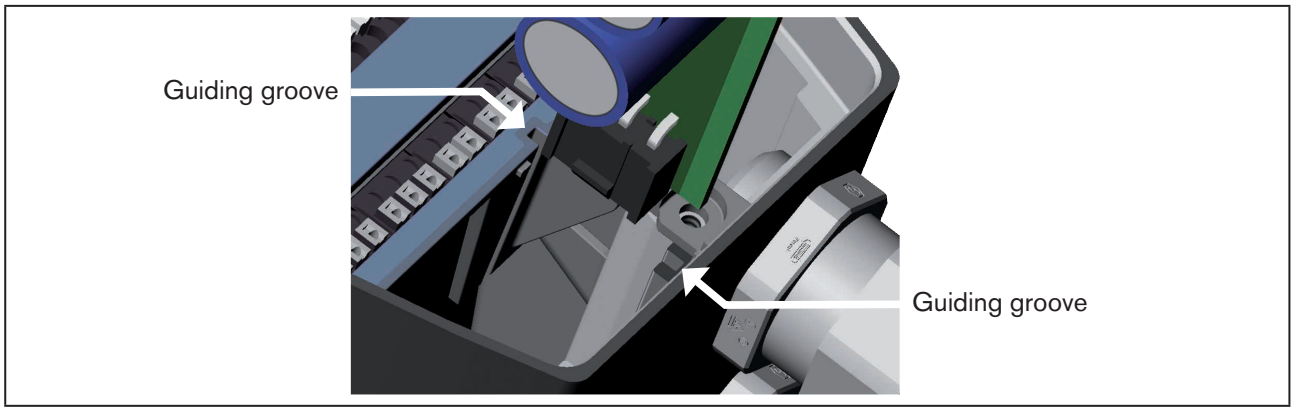

Figure 19: Inserting the SAFEPOS energy-pack

→ Tighten locking screw (T10 hexagonal socket round screw).

→ Apply supply voltage.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

9 ACCESSORIES, SPARE PARTS

CAUTION!

Risk of injury and/or damage due to the use of incorrect parts.

Incorrect accessories and unsuitable spare parts may cause injuries and damage the device and the surrounding area.

▸ Use original accessories and original spare parts from Bürkert only.

Accessories	Order number
Connection cable with M12 socket, 8-pole, (length 2 m)	919061
Connection cable with M12 socket, 4-pole, (length 5 m)	918038
USB büS interface set:	
büS service interface (büS stick + 0.7 m cable with M12 plug)	772551
büS adapter for büS Service interface (M12 to büS Service interface micro USB)	773254
büS cable extensions from M12 plug to M12 socket	
Connection cable, length 1 m	772404
Connection cable, length 3 m	772405
Connection cable, length 5 m	772406
Connection cable, length 10 m	772407
Bürkert Communicator	Information at www.buerkert.com
SIM card	919902
Holding device for line connection DN15 to DN20	693770
Holding device for line connection DN25 to DN50	693771

Table 5: Accessories

9.1 Communications software

The PC software "Bürkert Communicator" is designed for communication with Bürkert devices.

A detailed description of installation and operation of the PC software can be found in the associated operating instructions.

Download the software from: www.buerkert.com

9.1.1 USB interface

The PC requires a USB interface for communication with the devices, also an adapter with interface driver (see "Table 5: Accessories").

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

9.2 Spare parts

9.2.1 Spare parts for control valves of Types 3360 and 3361

Spare parts for Types 3360 and 3361			Order number
SAFEPOS energy-pack			285 834
Seal set for packing gland	Spindle ø10 mm, DN15...DN20		285 685
	Spindle ø14 mm, DN25...DN50		285 722
VA spindle guide for the packing gland	Spindle ø10 mm	Body DN15	246 577
		Body DN20	246 578
	Spindle ø14 mm	Body DN25	246 579
		Body DN32	246 583
		Body DN40	246 593
		Body DN50	246 594

Table 6: Spare parts for Types 3360 and 3361

9.2.2 Spare parts for angle seat control valve of Type 3360

Control cone set for Type 3360		
DN	Order number	
	Steel/steel	PTFE/steel
13/15	170 322	170 315
20	170 323	170 316
25	170 324	170 318
32	226 925	226 941
40	225 423	226 945
50	225 426	226 948

Table 7: Control cone set for Type 3360

9.2.3 Spare parts for straight seat control valve of Type 3361

Control cone set for Type 3361 includes: Control cone, dowel pin, graphite seal			
Orifice DN [mm]		Order number	
Seat	Body	Steel/steel	PTFE/steel
4	10/15	149 934	–
6	10/15	152 696	–
8	10/15	149 935	149 962

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

Control cone set for Type 3361 includes: Control cone, dowel pin, graphite seal			
Orifice DN [mm]		**Order number**	
Seat	**Body**	**Steel/steel**	**PTFE/steel**
10	10/15	149 912	149 963
	20	149 914	149 965
15	15	149 915	149 943
	20	149 916	149 944
	25	149 917	149 945
20	20	149 918	149 946
	25	149 951	149 947
	32	226 951	226 963
25	25	149 953	149 949
	32	226 952	226 964
	40	226 954	226 966
32	32	226 953	226 965
	40	226 955	226 967
	50	226 957	226 969
40	40	226 956	226 968
	50	226 958	226 970
50	50	226 959	226 971

Valve set for Type 3361 includes: Valve seat, control cone, dowel pin, graphite seal			
Orifice DN [mm]		**Order number**	
Seat	**Body**	**Steel/steel**	**PTFE/steel**
4	10/15	150 011	–
6	10/15	152 695	–
8	10/15	150 012	150 046
10	10/15	150 013	150 047
	20	150 014	150 048
15	15	150 015	150 049
	20	150 016	150 050
	25	150 017	150 051
20	20	150 018	150 052
	25	150 019	150 053
	32	227 025	227 037
25	25	150 021	150 055
	32	227 026	227 038
	40	227 028	227 040

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

Valve set for Type 3361 includes: Valve seat, control cone, dowel pin, graphite seal			
Orifice DN [mm]		**Order number**	
Seat	**Body**	**Steel/steel**	**PTFE/steel**
32	32	227 027	227 039
	40	227 029	227 041
	50	227 031	227 043
40	40	227 030	227 042
	50	227 032	227 044
50	50	227 033	227 045

Table 8: Valve set for Type 3361

9.3 Installation tools

9.3.1 Installation tools for control valves of Types 3360 and 3361

Modified socket wrench for packing gland (series production status from April 2012)			
Spindle ø [mm]	**Body DN**	**Wrench size**	**Order number**
10	15	WAF19	683 220
10	20	WAF21	683 222
14	25...50	WAF21	683 223

Table 9: Installation tools for Types 3360 and 3361

9.3.2 Installation tools for control valves of Type 3361

Installation tool for replacing valve seat	
Orifice valve seat DN	**Order number**
15	652 604
20	652 605
25	652 606
32	652 607
40	652 608
50	652 609
65	655 562
80	655 563
100	655 564

Table 10: Installation tools for Type 3361

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

10 PACKAGING, TRANSPORT

NOTE!

Transport damage.

Inadequately protected devices may be damaged during transportation.

- Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- Prevent the temperature from exceeding or dropping below the permitted storage temperature.

11 STORAGE

NOTE!

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location!
- Storage temperature: -40 to +70 °C.

12 DISPOSAL

NOTE!

Damage to the environment caused by parts contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner!
- Observe applicable disposal and environmental regulations.

Observe the national waste disposal regulations.

MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

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MAN 1000274528 EN Version: - printed: 30.11.2015 Status: RL (released | freigegeben)

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